SENATE ENVIRONMENT AND COMMUNICATIONS REFERENCES COMMITTEE INQUIRY INTO RETIREMENT OF COAL FIRED POWER STATIONS

Submission by 350.org Australia

CONTENTS

INTRODUCTION

350 Australia is one part of a global movement taking action to halt the climate crisis. We work with a network of campaigners and local groups across the country to help coordinate online campaigns, grassroots organising, and mass public actions to keep fossil fuels in the ground and support a transition to a cleaner and fairer economy.

The number 350 means climate safety: to preserve a liveable planet, scientists tell us we must reduce the amount of CO2 in the atmosphere from its current level of 400 parts per million to below 350 ppm.

OVERVIEW

Australia is faced with two pressing challenges:

1. Contributing to the urgent task of reducing our carbon emissions to reflect the severity of the climate crisis. As a wealthy and developed nation we must be at the forefront of this work, starting with a rapid phase-out of Australia's highly polluting coal fired power stations and replacing them with clean energy to achieve net zero electricity emissions as soon as possible.

2. At the same time the workers in these plants and the communities near them deserve a transparent and fair planning process to ensure they are supported through this transition.

To date, the Federal Government has failed to provide a national strategy to address these two challenges. Australia continues to be powered by some of the most emissions intensive electricity on the planet and communities are being left without new economic opportunities with the inevitable closure of coal. Because Australia operates with a National Energy Market, a coherent national plan is needed to ensure a smooth transition away from coal power generation. This will require coordination across all levels of Government and many different agencies and regulators and with community stakeholders to ensure it is done efficiently and fairly.

THE CLIMATE IMPERATIVE

As climate change impacts intensify in Australia and around the world, the time window in which to reduce CO2 emissions and prevent further devastating climate impacts narrows. Closing Australia's ageing coal fired power station fleet is a critical and urgent first step.

ACCELERATING CLIMATE IMPACTS

The need for urgent climate action has never been so clear. The surge in global temperatures experienced in 2015 and 2016 (Thompson, 2016) is having serious consequences such as the massive bleaching event that has damaged the northern half of the Great Barrier Reef so much that there are fears from Reef experts that it may never recover (Hannam, 2016).

In Australia, the Climate Council has regularly reported on a changing climate and its impacts. In 2015 it reported (Climate Council, 2015) that:

- It is beyond doubt that human activities, primarily the emission of greenhouse gases from the combustion of fossil fuels like coal, oil and gas, are driving the dramatic changes of the climate system;
- Climate change is increasing the frequency and severity of many extreme weather events, including heatwaves and extreme bushfire conditions; and
- Hot days have doubled in the last 50 years, while heatwaves have become hotter, last longer and occur more often.

The increase in frequency of natural disasters provides another imperative. According to the Asian Development Bank, "in the last 4 decades the frequency of natural disasters recorded in the Emergency Events Database has increased almost three-fold". (Asian Development Bank, 2015 - Page 7).

As World Bank President Jim Yong Kim observed earlier this year "With each passing day, the climate challenge grows. The longest streak of record-warm months has now reached 16 – such heat has never persisted on the planet for so long" (Jim Yong Kim, 2016).

It is clear that to protect our climate, fossil fuel emissions must be urgently constrained. This conclusion flows from the landmark paper by leading climate scientist James Hansen (2013) and his colleagues. This paper states: "continuation of high fossil fuel emissions, given current knowledge of the consequences, would be an act of extraordinary witting intergenerational injustice."

Despite the urgency of the climate challenge, Australians emissions have begun to rise again, particularly in the electricity sector, with an increase of 3% in 2014-2015 (Climate Council, 2016).

AN AGEING AND DIRTY COAL FLEET

The characteristics of Australia's National Electricity Market were summarised in a recent report by the Institute for Energy Economics and Financial Analysis (IEEFA, 2016) which found that:

- Australia has the highest carbon intensity of any country with major sub-critical generating assets [i.e. assets with a carbon intensity greater than 880 kg of CO2 per MWh of energy output];
- The four Victorian brown-coal generators all significantly exceed the world mean emission intensity for sub-critical generators;
- There is considerable excess capacity (16%) in the electricity generating system, a significant impediment to further renewables uptake;
- The power generation fleet is ageing (there are five stations older than 35 years);
- Site rehabilitation costs are a significant barrier to exit; and
- Governments can address these risks by implementing "an orderly coal phase-out plan".

As context, in Appendix 1 we provide a table showing Australia's coal power stations (both currently operating and recently retired) together with the owning companies, capacities, carbon intensities, and actual or forecast retirement dates.

AUSTRALIA'S COAL FLEET MUST BE RETIRED QUICKLY

In its "2016 Insights" the International Energy Agency comments that in a 2 Degree Scenario "OECD countries all but phase out generation from unabated coal-fired power plants by 2035" (International Energy Agency, 2016, Page 31). The Climate Institute reached a similar conclusion in modelling the Australian electricity sector (Climate Institute, 2015).

Considering that Australia has highest carbon intensity electricity of any country with major sub-critical generating assets (IEEFA, 2016) and that the measure of a safe climate should be to limit global warming to at most 1.5 degrees, coal retirement in Australia must occur far sooner than 2035.

In accordance with its obligations under the Paris Agreement, Australia must commit to doing its fair share to pursue the aim of "holding the increase in the global average temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels" (UNFCC, 2015).

A recent report on the implications for Australia of the 1.5 degrees objective (Stockholm Environment Institute, 2016) finds that for a two-thirds chance of the planet staying below 1.5 degrees, Australia's fair share is represented by a carbon budget of 2.5Gt CO2. Given that Australia currently emits 0.4 GT C02 per annum, this represents an incredibly slim window of just over six years. Australia's highly polluting electricity system, which represents a third of national CO2 emissions, is the obvious place to start. A rapid reduction of our carbon footprint in this sector would buy time to transition more challenging parts of the economy such as transport and agriculture.

We note that in November 2015 the UK Energy Minister announced an objective of retiring all UK coal power stations by 2025 (Rudd, 2015).

In Appendix 1, Table 2, we provide a list of the 15 Australian coal-fired power stations that are currently scheduled to retire later than 2025. We have ranked this list according to the relative carbon emissions of these stations.

RECOMMENDATION 1: *The Committee consider the severity of the climate change challenge and the need for Australia's coal power plants to be retired by 2025.*

THE COMMUNITY IMPERATIVE

Coal power station workers, and the communities that live nearby, deserve both cleaner air and water and to be supported through a just and transparent transition out of the coal industry.

HEALTH IMPACTS

Australia's coal power stations are a major source of toxic pollutants such as: sulphur dioxide, nitrous oxides, hydrochloric acid, mercury and fine particulate matter (PM2.5). The Climate and Health Alliance (CAHA, 2012) cites that air pollution from coal power generation is associated with respiratory, cardiovascular and nervous system diseases. It is estimated that these impacts cost the Australian health system $2.6 billion each year (Biegler, 2009).

A 2015 report on the full social cost of the Hazelwood Power Station found that 95% of air pollution in the Latrobe Valley results from burning coal and that the air pollution alone from the (soon to be retired) Hazelwood plant causes 18 premature deaths a year locally (Ward, 2014).

Despite these alarming figures, the Climate Council found that little comprehensive and independent research into the health impacts of Australia's coal fired power has been conducted (Climate Council, 2014). Given that most of Australia's power plants are situated near significant populations, this is a major failure by industry and governments.

It is clear that by closing coal power stations there will be a health benefit for workers and communities, and a reduced strain on Australia's health care system.

***RECOMMENDATION 2**: The Committee consider the positive health benefits and flow-on cost savings to the taxpayer from closing coal power stations and removing a significant source of air pollution.*

***RECOMMENDATION 3**: The Committee consider stricter air pollution controls on power plants to reduce the output of toxic pollutants.*

A JUST TRANSITION

Eight Australian coal power stations have closed in the past five years (McConnell, 2016). This has happened in lieu of a national strategy for a fair and planned transition for communities and workers. The recent closure of Port Augusta power station in South Australia and the announcement in November of the closure of Hazelwood in the Latrobe Valley came with short timeframes and little planning from the companies and governments despite years of community advocacy for just transition plans.

Whilst the urgency of the climate challenge means Australia's coal power stations will close sooner than their current projected life span, this does not mean that communities should be left in the lurch. As it has been with all major economic transformations, there is a role for government in ensuring that it happens in a fair and transparent manner for communities.

There must be justice for workers "who have done nothing wrong to work in the coal industry" (Queensland Conservation Council, 2015). The concept of the "just transition" means that:

- The burden of change that benefits everyone will not be placed disproportionately on a few;
- Those most vulnerable to change will be protected; and
- The process of change will increase social justice for workers, women, the poor, and all oppressed groups.

Such a just transition is essential to produce the “broad and sustainable political consensus”• necessary to make climate protection policy work in the long run (Labor Network for Sustainability, 2009).

Or, as expressed by the Australian Council of Trade Unions "the Just Transition framework seeks to lessen the impact on workers by ensuring that governments put in place policies that invest in new green technologies and skills, which can be used both to clean up existing industries and to open up opportunities in new industries" (ACTU, 2015).

RECOMMENDATION 4: *The Federal Government establish an independent body to consult with affected communities, workers and their unions to develop principles and processes for a just transition.*

REHABILITATION AND CLEAN UP COSTS

IEEFA (2016) finds that the costs of properly decommissioning and rehabilitating coal power station sites and associated mines are significantly under estimated by government and the power companies. This masks the true cost of coal power and now represents a major impediment to generators leaving the market.

Credit Suisse (2016) and Environment Victoria (2014) find that in the Latrobe Valley rehabilitation costs are significantly under estimated, with the gap between company bonds and the true costs potentially over $500 million. Without the government holding cash bonds from the companies that appropriately reflect the rehabilitation costs, there is a significant disincentive for coal plant closure and the risk that future costs come back on to the taxpayer.

RECOMMENDATION 5: *The Federal Government needs to fully assess the decommissioning and rehabilitation costs of coal power plants and associated mines and work with the States to ensure companies provide a cash bond commensurate with the full rehabilitation cost.*

TRANSITION IN THE UNITED STATES

In the United States, coal power stations have been closing at a rapid rate in the past five years. No new coal plants are planned or under construction in the US (Morris, 2016). The coal power retirement process is being hastened by the Obama administration’s Clean Power Plan which relies on carbon pollution standards (US EPA, 2015).

In states where the transition has been managed poorly, the layoffs of coal workers have exacerbated problems such as family poverty, declining tax revenues, declining property values, local government deficits and mine clean-up liabilities (Morris, 2016)

However, to deal with the impact on workers, the Obama administration has made “economic revitalization grants” through a program called Partnerships for Opportunity and Workforce and

Economic Revitalization - POWER. These grants assist communities to diversify their economies, create jobs in new or existing industries, attract new sources of job-creating investment, and provide workforce services such as skills training (White House, 2015).

Another important transition program in the US is funded through the Appalachian Regional Commission, which covers the 13 states that make up Appalachia, with assistance from federal funds. Local communities are encouraged to make bids for these funds, and HR managers at coal plants that are scheduled to close can approach the Appalachian Regional Commission for information on relevant projects that could assist their workers (Buchsbaum, 2016).

In her US campaign platform, Hillary Clinton has proposed a $30 billion plan which includes assurances of retiree benefits, reform of black lung benefits, school funding, mine reclamation, infrastructure and training (Morris, 2016).

RECOMMENDATION 6: *The Committee consider the experience of other OECD countries closing coal power stations and look for best practice methods of supporting workers and communities during the transition.*

A NATIONAL PLAN IS NEEDED

To date the Federal Government has failed to provide a national strategy to address both the urgent need to shut down Australia's coal power plants and to support communities and workers with a just transition. Because Australia operates with a National Energy Market there is a critical role for the Federal Government to play in shaping a coherent, ambitious, efficient and fair plan to support the transition. This will require coordination across all levels of government and many different agencies and regulators and with community stakeholders to ensure it is done efficiently and fairly.

SUPPORTING A RAPID ENERGY TRANSITION

A range of policy tools exist for the Federal Government to encourage coal closure and transition to clean energy. Six such tools are set out below.

Carbon price

"Carbon price" has become such a politically loaded phrase in Australia that it is no longer possible to have a sensible dialogue about the subject across the political divide. The fact remains, however, that a price on carbon would provide a market mechanism to drive sensible change. Many fossil fuel companies, such as AGL Energy, have advocated a carbon price (AGL, 2016). A carbon price would ensure that the highest emitting forms of power production would exit the market first: brown coal before black coal, coal before gas, and so on.

Air pollution controls

Emission standards could be imposed on all power stations, using a methodology similar to that developed by the Obama administration in the United States (US EPA, 2015). This will have both positive health and carbon emissions benefits.

Coal retirement age

Generally the owners of coal power stations plan for an age of 50 years and depreciate these assets accordingly. The Government could mandate that such power plants be retired at an age of (say) 30 years.

Market Mechanism for closure

Jotzo and Mazouz have proposed (Jotzo, 2015) a market mechanism for the regulated exit of highly emissions intensive power stations from the electricity grid. Given that there is surplus capacity in coal fired power generation in Australia, and given that since July 2014 there has been no carbon price signal, another mechanism is needed to ensure that the most carbon-intensive stations are retired first. Their proposal involves plants bidding competitively over the payment they require for closure, the regulator choosing the most cost effective bid, and payment for closure being made by the remaining power stations in proportion to their carbon dioxide emissions.

Reform the National Electricity Objective

The NEO reflects the time it was written for and contains now reference to issues of sustainability or carbon intensity. The Objective should be revised to reflect a need for the energy market to become carbon neutral.

Renewable energy target

The International Energy Agency recently stated that "governments must sustain and complement existing policies to support renewables deployment" (International Energy Agency, 2016, Page 62). Currently Australia has no national renewable energy target beyond the year 2020. We contend that the deployment of renewable energy in Australia has been an outstanding success. The Australian Capital Territory is on track to achieve 100% renewable energy by 2020, an objective which is now supported by all ACT political parties. There is no evidence of any risk to energy security in the ACT from this policy.

Far from seeking to reduce the renewable energy targets of state governments, we propose that the Federal Government match the states by establishing a 50% Renewable Energy Target for Australia by 2030. This scenario has been analysed by global investment bank UBS and it found that it would require an investment of about $80 billion, but stated that "much of this will come from private investment, mostly from listed companies, and would be spent anyway to replace ageing coal and gas plants" (Parkinson, 2015).

RECOMMENDATION 7*: That the Federal Government establish a clear policy framework that would ensure the orderly and incremental retirement of all major coal power stations by 2025 drawing on the policy tools that will be most efficient and effective. This framework should ensure that:*

- *The most carbon-intensive power stations (such as the brown coal stations) retire earliest;*
- *There is proper rehabilitation of the affected sites; and*
- *Power station owners are held responsible for funding full rehabilitation costs.*

SUPPORTING COMMUNITIES AND WORKERS

As has been outlined earlier in this submission, it is critical that communities and workers involved with coal power plants are supported with a just transition plan from Federal and State Governments.

A range of policy tools already exist to support such a transition. They include:

- Transparent plans and timeframes in line with the climate imperative;
- Consultation and transition planning with state governments, local governments, local communities and workers; and
- Retraining, new investment and in some cases redundancy support.

This submission consulted reports on "life after coal" relating to three affected regions: the Latrobe Valley (Environment Victoria, 2016), Queensland (Queensland Conservation Council, 2015) and the Hunter Region (CofFee, 2008).

Common themes in these reports were the need for:

- A plan for an orderly phase-out of the coal power stations and their associated mines;
- A transition authority (a state government agency) and a transition fund;
- Support for mine and power station workers, including redundancy packages for some workers and ongoing employment opportunities for the others;
- Funding of training programs for retrenched workers; and
- Rehabilitation works delivering environmentally sound landscapes.

Each of these reports made suggestions about alternative industries for their regions, which included:

- Residential and commercial building energy efficiency programs and a solar hot water manufacturing hub in the La Trobe Valley;
- Fish farming, tourism and recreational fishing, higher education, bio-industrial products, and renewable energy opportunities in Queensland; and
- Renewable energy opportunities in the Hunter region, with a potential to create a net 7,300 additional jobs.

The Australian Conservation Council and the ACTU have estimated that, by taking strong action to embrace clean energy and energy efficiency, Australia can create one million new jobs and reduce pollution by 80 per cent by 2040. Almost half of the new jobs would be in the key sectors of electricity, gas and water, construction and health. Employment in construction would grow significantly due to investment to improve the energy efficiency of buildings, create more public transport infrastructure and build new clean energy projects (ACF, 2016).

RECOMMENDATION 8*: That the Federal Government establish a clear policy framework and commit sufficient funding (or ensure companies finance programs) to support communities and workers throughout the closure of coal power plants and transition to new forms of employment and regional development.*

SUMMARY OF RECOMMENDATIONS

RECOMMENDATION 1: *The Committee consider the severity of the climate change challenge and the need for Australia's coal power plants to be retired by 2025.*

RECOMMENDATION 2*: The Committee consider the positive health benefits and flow-on cost savings to the taxpayer from closing coal power stations and removing a significant source of air pollution.*

RECOMMENDATION 3*: The Committee consider stricter air pollution controls on power plants to reduce the output of toxic pollutants.*

RECOMMENDATION 4: *The Federal Government establish an independent body to consult with affected communities, workers and their unions to develop principles and processes for a just transition.*

RECOMMENDATION 5: *The Federal Government needs to fully assess the decommissioning and rehabilitation costs of coal power plants and associated mines and work with the States to ensure companies provide a cash bond commensurate with the full rehabilitation cost.*

RECOMMENDATION 6: *The Committee consider the experience of other OECD countries closing coal power stations and look for best practice methods of supporting workers and communities during the transition.*

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APPENDIX 1: POWER STATION TABLES

TABLE 1. COAL POWER STATIONS, THEIR OWNERS, CAPACITIES, CARBON INTENSITIES AND RETIREMENT DATES

OWNER	POWER STATION	CAPACITY (MW)	CARBON INTENSITY (t CO2-e/GWh)	RETIRE-MENT DATE
AGL ENERGY	BAYSWATER	2640	872	2035
	LIDDELL	2000	939	2022
	LOY YANG A	2180	1141	2048*
ALCOA	ANGLESEA **	150	1090	2012
ALINTA ENERGY	NORTHERN **	554	1033	2016
	PLAYFORD B **	240	1390	2012
BLUEWATERS POWER	BLUEWATERS 1	416	885	2059
	BLUEWATERS 2		816	
CLP/ENERGY AUST.	MOUNT PIPER	1400	865	2043
	YALLOURN W	1480	1272	2024
CS ENERGY	CALLIDE B	700	931	2039
	CALLIDE C	950	894	2051
	KOGAN CREEK	744	831	2057
DELTA ELECTRICITY	MUNMORAH **	1070		2012
ENERGY BRIX AUST.	MORWELL **		2415	2014
ENGIE	HAZELWOOD	1600	1400	2017
	LOY YANG B	1000	1131	2043
INTERGEN	MILLMERRAN	856	812	2053
ORIGIN ENERGY	ERARING	2820	858	2033
RATCH-Australia	COLLINSVILLE **	190	1090	2016
REDBANK ENERGY	REDBANK **	150	1187	2014
RIO TINTO CONSORTIUM	GLADSTONE	1680	972	2026
STANWELL	STANWELL	1460	845	2043
	SWANBANK B **		1000	2012
	SWANBANK E			
	TARONG	700	878	2034
	TARONG N	450	878	2053
SUNSET POWER INT'L	VALES POINT B	1320	868	2026
SYNERGY/VERVE ENERGY	COLLIE	340	904	2049

(CONT.)				
	KWINANA **			2014
	MUJA A, B	854	974	2016 ***
	MUJA C		974	2016 ***
	MUJA D		974	2016 ***

Sources of the above data:
[1] Vorrath, 2015
[2] IEEFA, 2016
[3] McConnell, 2016
[4] ACIL Allen Consulting (2016)

* Loy Yang A was originally scheduled to retire in 2035, but AGL extended its life by one-third for accounting purposes when it took control in 2012
** Closed power stations
*** Assuming a life of 50 years

TABLE 2. POWER STATIONS SCHEDULED TO RETIRE LATER THAN 2025

Based on Table 1, we can construct the following list of the 15 coal-fired power stations that are currently scheduled to retire later than 2025. We have ranked this list according to their relative emissions (notionally in tons of carbon-equivalent per hour, assuming 24x7 operation at full capacity) derived by multiplying the capacity (in gigawatts) by the carbon intensity.

POWER STATION	**RELATIVE EMISSIONS (tons CO2/hr)**	**CURRENT RETIREMENT DATE**
LOY YANG A	2487	2048
BAYSWATER	2300	2035
ERARING	2033	2033
GLADSTONE	1633	2026
STANWELL	1234	2043
MOUNT PIPER	1211	2043
VALES POINT	1146	2026
LOY YANG B	1131	2043
CALLIDE C	849	2051
MILLMERRAN	695	2053
KOGAN CREEK	618	2057
TARONG	615	2034
TARONG N	395	2053
BLUEWATERS 1	368	2059
COLLIE	307	2049